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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,188	09/21/2001	Christine Connolly	013344-9027	6355

23409 7590 01/12/2006

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EXAMINER	
MISLEH, JUSTIN P	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/937,188	CONNOLLY ET AL.	
	Examiner	Art Unit	
	Justin P. Misleh	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 30* is/are pending in the application.

4a) Of the above claim(s) *16 - 30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 – 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed October 4, 2005 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Takahashi et al. (US 5 831 676). Since the claims have not been substantially amended and a new grounds of rejection has been applied; this Office Action is Non-Final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1 – 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. in view of Sakai et al.

4. For **Claim 1**, Takahashi et al. disclose, as shown in figure 15 and as stated in columns 13 (line 42) – 14 (line 15), a method of calibrating a color monitoring system so as to compensate for non-ideal real camera characteristics, the method comprising:

establishing a point ("a", "b", or "c") at which a graph of input light intensity against camera output voltage starts to deviate from a substantially linear characteristic, hereinafter referred to as establishing the knee (specifically, see column 14, lines 5 – 15); and

restricting the amount of light incident on all sensor elements of the camera such that the maximum output corresponds to a voltage at, or below, the knee, and lower light intensities are all within the range of linear operation (specifically, see column 13, lines 52 – 57).

While Takahashi et al. disclose a method of establishing a knee point and such that output signals conforms to a linear characteristic; Takahashi et al. does not disclose establishing a camera offset by measuring or calculating the output voltage of the camera when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset.

On the other hand, Sakai et al. also disclose a method for compensating real camera characteristics. More specifically, Sakai et al. disclose, in accordance with figures 1 and 2 and column 4 (line 29) – column 5 (line 49), an image processing apparatus that at least includes a shutter (2) and a photoelectric conversion unit (3) which includes a plurality of pixels. Furthermore, Sakai et al. disclose that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image that represents noise. The noise capturing operation, while the shutter is closed, is repeated two or more arbitrary times such that a plurality of dark images are captured so that an averaged dark image can be calculated to represent the average noise of the photoelectric conversion unit (3). The averaged dark image is an "offset" that is subtracted the subject image to produce a final image with reduced noise. Clearly, Sakai et al. teach establishing a camera offset by measuring or calculating the output voltage of the camera

when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset.

As stated in column 1 (lines 30 – 35), at the time the invention was made, it would have been obvious to one with ordinary skill in the art to have included establishing a camera offset by measuring or calculating the output voltage of the camera when substantially no light falls on any of its sensor elements, hereinafter referred to as establishing the offset, as taught by Sakai et al., in the method, disclosed by Takahashi et al., for the advantage of reducing fixed pattern noises without increasing random noises.

5. As for **Claim 2**, Sakai et al. teach, as stated in column 4 (lines 10 – 30), that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image that represents noise. Therefore, Sakai et al. teach that the offset is established on a periodical basis.

6. As for **Claim 3**, Sakai et al. teach, as stated in column 4 (lines 10 – 30), that when a user operates a release button, the shutter (2) is opened and the plurality of pixels of the photoelectric unit (3) captures an image of the subject that has passed through the lens (1) and the opened shutter (2). After the image of the subject has been captured, the shutter (2) is closed, such that light passing through the lens does not pass through the shutter (2) to the photoelectric conversion unit (3); hence, allowing the photoelectric conversion unit (3) to capture a dark image

that represents noise. Therefore, Sakai et al. teach that the offset is established whenever an image capture operation for capturing a desired image is carried out.

7. As for **Claims 4 – 7**, the Examiner notes that the features of these claims are inherent to what is actually required by the claim language. In other words, closing the camera iris (Claim 4), capturing a black image (Claim 5), or extrapolating measurements of known black reflectance (Claim 6) will always generate a point of zero light intensity. In regards to Claim 7, the captured image will always eventually have a known point of reflectance – specifically, at the time of image output. In regards to these claims, the claims do not actually require performing the respective operations to set said point. Thus, since the claimed features are inherent to the claim language; they are equally inherent to the combination Takahashi et al. and/or Sakai et al.

8. As for **Claims 8 and 9**, while Takahashi et al. in view of Sakai et al. teach providing a black reference representing known zero light specifically when no light is allowed to impinge upon the image sensor; Takahashi et al. do not disclose providing a white reference representing know maximum light (saturation) in the image field via a white reference tile.

However, **Official Notice** (MPEP § 2144.03) is taken that both the concepts and advantages of providing a white reference representing know maximum light (saturation) in the image field via a white reference tile are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have provided a white reference representing know maximum light (saturation) in the image field via a white reference tile for advantage of ensuring the subject has proper color balance such that the subject can be reproduced precisely in an image display unit without being affected by the color characteristic of the camera.

9. As for **Claim 10**, Takahashi et al. disclose, as shown in figure 15 and as stated in column 14 (lines 5 – 15), wherein restricting the camera to operate within the linear region is achieved by reducing the camera aperture by closing the iris to a predetermined knee such that the output voltage when measuring the source of maximum light intensity corresponds to a camera output voltage at or below the knee.

10. As for **Claim 11**, Takahashi et al. disclose, as shown in figure 14 and as stated in column 14 (lines 5 – 15), wherein the iris is restricted so as to give an appropriate camera output voltage, which is a proportion of a full scale value.

11. As for **Claim 12**, Takahashi et al. disclose, as shown in figure 14 and as stated in column 14 (lines 5 – 15), the gamma characteristic curve showing the voltage output by the image sensor versus the input light. On a gamma characteristic curve, the uppermost level represents saturation (maximum white) and the lowermost level represents no light (maximum black). Furthermore, Takahashi et al. disclose that each curve with respective knee point ("a", "b", and "c") to meet at the uppermost level representing saturation. In other words, the knee point is optimized such that the curve is linear from the uppermost level (saturation) to the lowermost level (black image). Thus, Takahashi et al. disclose wherein restriction of the iris is arranged to ensure that a perfect white reflector registers at the top of the linear region and to then scale

12. As for **Claim 13**, Takahashi et al. is directed to calibration prior to, during, and after image capture wherein Sakai et al. is directed to real-time correction during image capture. Therefore, Takahashi et al. in view of Sakai et al. teach that the knee (Takahashi et al.) is established less frequently (once versus every image capture) the offset (Sakai et al.).

13. As for **Claims 14 and 15**, the Examiner notes in both Claims 14 and 15, the claim language is written broadly enough such a plurality of print runs directly corresponds to a plurality of image captures. Moreover, as stated in column 13 (line 42) – column 14 (line 15), Takahashi et al. disclose establishing the knee both at the time of selecting a phototaking mode before images have been captured and during image processing, via look-up tables (19a and 19b), after a plurality of image captures.

Cited Prior Art

14. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure for the following reasons:

- **US 6 204 881 B1 (Ikeda et al.)** discloses an image processing apparatus for combining a plurality of images with different exposure levels such that the combined image exhibits a linearly characteristic and wide dynamic range while eliminating the noise floor of at least one of images.
- **US 6 633 330 B1 (Sugiura et al.)** discloses an image pickup apparatus and an image reproducing apparatus wherein a test chart is used to adjust the color balance of an image picked up by the image pickup apparatus such that the image picked up may be properly processed for reproduction.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Ngoc Yen Vu can be reached on 571.272.7320. The fax phone number for the organization where this application or proceeding is assigned is 571.273.3000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
January 9, 2006

NGOC-YEN VU
PRIMARY EXAMINER